

INTERNATIONAL SEARCH REPORT

PCT/US2004/034548

| A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C07C271/40 C07D519/42 C07D213/64 A61K31/27 A61K31/4406 A61K31/407 A61K31/5365 A61P25/GO | | |
|--|--|--|
| According to International Patent Classification (IPC) or to both national classification and IPC | | |
| B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07C C07D A61K A61P | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | |
| Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, CHEM ABS Data, BEILSTEIN Data | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No |
| X | WO 96/02524 A (MEDIOLANUM FARMACEUTICI S.p.A.; TERNI, PATRIZIA; MAIRANI, LUCIA; MANDEL) 1 February 1996 (1996-02-01) claims; examples ----- | 1-10, 12-53 |
| X | DE 38 05 744 A1 (SANDOZ-PATENT-GMBH, 7850 LOERRACH, DE; NOVARTIS AG, BASEL) 15 September 1988 (1988-09-15) claims ----- | 1-53 |
| X | US 4 948 807 A (ROSIN ET AL) 14 August 1990 (1990-08-14) examples ----- -/- | 1-10, 12-53 |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C <input checked="" type="checkbox"/> Patent family members are listed in annex | | |
| * Special categories of cited documents "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family | | |
| Date of the actual completion of the international search | | Date of mailing of the international search report |
| 21 June 2005 | | 16 11. 2005 |
| Name and mailing address of the ISA European Patent Office, P B 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel (+31-70) 340-2040, Tx 31 651 epo nl Fax (+31-70) 340-3016 | | Authorized officer Osterle, C |

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No |
|------------|---|----------------------|
| X | <p>DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; KOYAMA, KAZUO ET AL: "Pharmaceuticals containing (hydroxybenzyl) amines as acetylcholine esterase inhibitors and selective serotonin reuptake inhibitors" XP002331878 retrieved from STN Database accession no. 2004:291183 abstract & JP 2004 107322 A2 (BTG INTERNATIONAL LTD., UK) 8 April 2004 (2004-04-08) -----</p> | 1-10, 12-53 |
| X | <p>DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; GOTO, GIICHI ET AL: "Preparation of aromatic carbamates as choline esterase inhibitors for improvement of cerebral function" XP002331879 retrieved from STN Database accession no. 1991:206818 abstract & JP 03 002155 A2 (TAKEDA CHEMICAL INDUSTRIES, LTD., JAPAN) 8 January 1991 (1991-01-08) -----</p> | 1-10, 12-53 |
| X | <p>RAMPA A ET AL: "Acetylcholinesterase inhibitors: SAR AND KINETIC STUDIES ON OMEGA- [N-METHYL-N- (3-ALKYLCARBAMOYLOXYPHEN YL)METHYL]AMINOALKOXYARYL DERIVATIVES" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 44, no. 23, 2001, pages 3810-3820, XP002297756 ISSN: 0022-2623 compounds 12-15 -----</p> | 1-10, 12-53 |
| X | <p>ELMALEM E ET AL: "ANTAGONISM OF MORPHINE-INDUCED RESPIRATORY DEPRESSION BY NOVEL ANTICHOLINESTERASE AGENTS" NEUROPHARMACOLOGY, PERGAMON PRESS, OXFORD, GB, vol. 30, no. 10, October 1991 (1991-10), pages 1059-1064, XP001004447 ISSN: 0028-3908 the whole document ----- -/--</p> | 1-10, 12-53 |

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| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|--|---|----------------------|
| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No |
| X | <p>AMSTUTZ R ET AL: "CYCLISCHE PHENYL-CARBAMATE DES MIOTIN-TYPS UND IHRE WIRKUNG AUF DIE ACETYLCHOLINESTERASE CYCLIC PHENYL CARBAMATES AND THEIR ACTION ON ACETYLCHOLINESTERASE" HELVETICA CHIMICA ACTA₅ VERLAG HELVETICA CHIMICA ACTA. BASEL, CH, vol. 73, no. 3, 1990, pages 739-753, XPO09047338 ISSN: 0018-019X compounds 2,7</p> <p>-----</p> | 1-53 |
| X | <p>STERLING J: "novel dual inhibitors of AChE and MAO" JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. WASHINGTON, US, vol. 45, no. 24, 2002, pages 5260-5279, XP002296523 ISSN: 0022-2623 compounds IA, IB</p> <p>-----</p> | 1-10, 12-53 |
| X | <p>FR 2 719 047 A (FABRE MEDICAMENT PIERRE) 27 October 1995 (1995-10-27) page 22; example F</p> <p>-----</p> | 1-9, 12-53 |
| X | <p>V. TUMIATTI ET AL: "[4- [[N- (3-Chlorophenyl) carbamoyl] oxy] -2-butynyl]-trimethyl ammonium (McN-A-343) -related compounds. Effect of the butynyl chain inclusion into an aromatic unit on the potency for muscarinic receptors" BIOORGANIC & MEDICINAL CHEMISTRY, vol. 8, 200G₅ pages 681-689, XP002331877 table 1; compounds 1-18</p> <p>-----</p> | 1-9, 12-53 |
| L | <p>DATABASE BEILSTEIN [Online] BEILSTEIN INSTITUT FUER CHEMISCHE WISSENSCHAFTEN, FRANKFURT AM MAIN, DE; XP002331880 Database accession no. 605269 (BRN) abstract & SHIN J-S. ET AL: J.ORG.CHEM., vol. 67, no. 9, 2002, pages 2848-2853,</p> <p>-----</p> | 1-53 |

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

- 1 ☒ Claims Nos
because they relate to subject matter not required to be searched by this Authority namely
Although claims 25-50 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
- 2 ☐ Claims Nos
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out specifically
- 3 ☐ Claims Nos
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows

see additional sheet

- 1 ☐ As all required additional search fees were timely paid by the applicant this International Search Report covers all
searchable claims
- 2 ☐ As all searchable claims could be searched without effort justifying an additional fee this Authority did not invite payment
of any additional fee
- 3 ☐ As only some of the required additional search fees were timely paid by the applicant this International Search Report
covers only those claims for which fees were paid specifically claims Nos
- 4 ☒ No required additional search fees were timely paid by the applicant Consequently this International Search Report is
restricted to the invention first mentioned in the claims it is covered by claims Nos

see annex

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest
- ☐ No protest accompanied the payment of additional search fees

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-53 (in part)

Aminoethylphenyl carbamic acid esters (1st compound in claims 9-11)

2. claims: 1-10,12-53 (in part)

Phenyl ammonium carbamic acid esters (2nd compound in claim 9, 3rd compound in claim 10)

3. claims: 1-53 (in part)

Pyrroloindolyl carbamic acid esters (3rd compound in claim 9, 2nd compound in claims 10 and 11)

4. claims: 1-10,12-53 (in part)

N-oxo-pyrroloindolyl carbamic acid esters (4th compound in claims 9 and 10)

5. claims: 1-53 (in part)

Hexahydrooxazinoindolyl carbamamic acid esters (5th compound in claims 9 and 10, 3rd compound in claim 11)

6. claims: 1-53 (in part)

Tetrahydrofuroindolyl carbamamic acid esters (6th compound in claims 9 and 10, 4th compound in claim 11)

7. claims: 1-10,12-53 (in part)

pyridinyl carbamamic acid esters (last compound in claims 9 and 10)

Information on patent family members

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------------|
| wo 9602524 | A | 01-02-1996 | AU 3078395 A 16-02-1996 |
| | | | EP 0772608 A1 14-05-1997 |
| | | | IT 1271679 B 04-06-1997 |
| | | | US 5869484 A 09-02-1999 |
| DE 3805744 | A1 | 15-09-1988 | NONE |
| US 4948807 | A | 14-08-1990 | AU 595504 B2 05-04-1990 |
| | | | AU 5428486 A 11-09-1986 |
| | | | CA 1284501 C 28-05-1991 |
| | | | CY 1748 A 03-06-1994 |
| | | | DE 3675408 D1 13-12-1990 |
| | | | DE 19875046 I1 04-09-2003 |
| | | | DK 99186 A 06-09-1986 |
| | | | EP 0193926 A2 10-09-1986 |
| | | | ES 8801193 A1 01-03-1988 |
| | | | FI 860914 A 06-09-1986 |
| | | | GR 860586- A1 07-07-1986 |
| | | | HK 130293 A 03-12-1993 |
| | | | HU 41718 A2 28-05-1987 |
| | | | IE 58838 B1 17-11-1993 |
| | | | IL 74497 A 09-02-1990 |
| | | | JP 1629293 C 20-12-1991 |
| | | | JP 2055416 B 27-11-1990 |
| | | | JP 61225158 A 06-10-1986 |
| | | | KR 9410764 B1 11-11-1994 |
| | | | LU 90312 A9 06-01-1999 |
| | | | NL 980031 I1 04-01-1999 |
| | | | NZ 215348 A 26-04-1990 |
| | | | PH 23325 A 14-07-1989 |
| | | | PL 146301 B1 31-01-1989 |
| | | | PT 82127 A 01-04-1986 |
| | | | ZA 8601653 A 28-10-1987 |
| JP 2004107322 | A2 | -- | -- |

Information on patent family members

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Information on patent family members

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